NavMed 369 RESTRICTED

NAVY DEPARTMENT

BUMED NEWS LETTER

a digest of timely information

Editor - Captain F. W. Farrar. (MC). U.S.N.

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Circular Letters:

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Biological Aspects of the Atomic Bomb Tests: The Medical Departments of the Army and Navy expect to acquire knowledge of inestimable biological and medical value through studies on animals in "Operations Crossroads" at Bikini Atoll.

Arrangements will be made to obtain the maximum amount of information that may be helpful in the future in the protection of personnel and to determine the effects the explosions will have on military supplies and equipment. Where possible, the search for basic scientific information will be included.

The program will stress the study of biological effects of the various types of blast injuries, which may be designated by the terms, air blast, water blast, solid blast, thermal blast and radioactivity blast. These, plus secondary reactions, include all the effects the atomic bomb may have on personnel.

At present, the USS BURLESON, assault transport, is being refitted at Hunter's Point, San Francisco, California, as a floating laboratory. The holds are being converted into pens for 200 pigs, 200 goats and 3,000 white rats to be used in the tests. Troop quarters are being made into laboratories. The officers and men of the Medical Research Section will travel to Bikini aboard the BURLESON which will make the voyage direct to prevent keeping the animals too long at sea.

The goats, pigs and rats will be placed at selected locations aboard the 22 target vessels during both tests which are to be studied.

Some goats will be tethered in exposed positions on decks of the target ships and others let free to roam in compartments. Some will be covered with multi-type clothing and placed in exposed spots to determine the thermal effects on the clothing. Others will be clipped and various types of antiflash cream applied to test the protective action of each.

Blood studies will be made on the animals before and after the tests. These studies will give some of the best evidences of the occurrence of injury from radioactivity and recovery from its effects. Illness from radioactivity ("radiation sickness") will be studied particularly and treated in various stages with the view toward determining the best methods of therapy.

Studies will be made of the effects of the various types of blast on food, water, living pathogenic bacteria, viruses, vaccines, toxins, antisera, bacteriophages, hormones, vitamins and other medical supplies and equipment.

The National Cancer Institute will collaborate in a study of any carcinogenic effects of the bomb explosion upon sensitive animals and will furnish 120 white mice with predilections to cancer in an effort to obtain further information on this problem.

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The Department of Agriculture will study the effects of the bomb explosions upon various kinds of grain and will also investigate the genetic effects induced in exposed insects.

Captain R. H. Draeger (MC), USN, on duty at the Naval Medical Research Institute, Bethesda, Maryland, will be in charge of the biological aspects of these tests and will have working with him eleven U. S. Navy officers, seven U. S. Army officers and civilian research specialists.

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Clinical Use of Chemical Warfare Agents: With the onset of World War II, intensive research in the field of chemical warfare agents was resumed. Mustard, bis(B-chloroethyl)sulfide and a series of nitrogenous analogues, bis- and tris(B-chloroethyl)-amines were studied particularly. It was appreciated that sulfur and nitrogen mustards were not only contact vesicants but following absorption could exert cytotoxic actions on a variety of tissues. Also, cellular susceptibility to these compounds appeared to be related in a general way to the degree of cellular proliferative activity. The type of action of these chemicals on cells cannot be likened to that of any other chemical agent but in many ways resembles that of X-rays.

The nitrogen and sulfur mustards owe their physiological activity to a basic chemical reaction which they share in common, namely, intramolecular cyclization in a polar solvent to form a cyclic onium cation with liberation of Cl^-. The reaction may be depicted as follows, Z representing the sulfur or nitrogen atom:

$$R\text{-}Z\text{-}CH_2CH_2Cl \longrightarrow R\text{-}{}^{+}\overline{Z\text{-}CH_2CH_2} + Cl^-$$

The onium cation (ethylenimonium in the case of the B-chloroethyl amines, ethylenesulfonium in the case of B-chloroethyl sulfide) reacts readily with anions and various uncharged nucleophilic molecules. It is the great reactivity of the cyclic onium cation which imparts to this group of vesicants their varied actions.

Although diverse systemic effects can be elicited in the mammalian organism by the administration of toxic amounts of the mustards, threshold doses evoke pathological changes only in cells and tissues which normally exhibit relatively high rates of proliferation and growth. Thus the formed elements of the blood and the mucosa of the gastrointestinal tract first reflect the cytotoxic action of the mustards.

Briefly, the action of the mustards on the blood-forming organs as reflected in the peripheral blood of both experimental animals and humans results

in a lymphopenia, granulocytopenia, thrombocytopenia and moderate anemia. The severity of the response is in direct relationship to the dose administered. Marked effects on hematopoiesis can be obtained with sublethal doses.

The effects of the mustards on the gastrointestinal tract are equally marked. Nausea and vomiting are evident within a few hours. This may be a reflex response from the gastrointestinal mucosa or possibly the result of direct medullary stimulation. Diarrhea becomes evident within 24 hours and becomes progressively more severe. Both the vomitus and feces may contain blood. As a result of the loss of fluid and electrolyte from the gastrointestinal tract, marked changes in body fluid occur. Furthermore, there is evidence that the action of lethal doses of nitrogen mustards on the kidney may result in a polyuria and a renal wastage of extracellular electrolyte. A loss of intracellular potassium and water may also occur. Eventually, circulatory collapse ensues, a typical shock picture is observed and death from respiratory failure ensues.

As might be expected from the above actions of the mustards, the outstanding pathological lesions produced by either nitrogen or sulfur mustards are found in the intestinal tract, bone marrow and lymphatic tissue. The intestinal lesion progresses from vacuolization and nuclear swelling of the epithelial cells to eventual necrosis and desquamation with hemorrhage. Lymphoid tissue throughout the body is uniformly involved. Lymphatic fragmentation may be evident within 10 hours, leading to a persistent lymphatic atrophy for a number of days. In the bone marrow early changes include swelling and alteration in the staining reaction of hematopoietic cells and a disappearance of mitotic activity. Progressive depletion of the marrow follows, and eventually almost complete aplasia results.

The marked effects of the mustards on lymphoid tissue, coupled with the finding that actively proliferating cells are selectively vulnerable to the cytotoxic action of the mustards, suggested the therapeutic use of these compounds in the treatment of neoplasms of lymphoid tissue. Because of its undesirable physical properties and extreme chemical reactivity, sulfur mustard does not lend itself to parenteral administration. However, nitrogen mustards in the form of their hydrochloride salts are water-soluble crystalline compounds which can be readily dissolved in sterile saline for intravenous administration. Experiments on transplanted lymphosarcoma in mice revealed that dissolution of such tumors could be rapidly effected although the dose required bordered on the toxic, and the tumor invariably returned. The first clinical trial of the nitrogen mustards was conducted on a group of six patients in the terminal stages of various neoplastic diseases. In two cases of lymphosarcoma in which X-ray therapy had been discontinued, a rapid dissolution of large tumor masses followed a course of injections. The results were sufficiently encouraging to warrant further clinical experimentation. To date approximately 150

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patients have been treated by several groups of investigators. For the most part observations have been limited to selected cases of Hodgkin's disease, lymphosarcoma and leukemia.

In general, the most favorable effects have been obtained in patients with Hodgkin's disease. Remissions characteristic of those which follow careful X-ray therapy have been observed. Symptoms were quickly alleviated, and physical evidence of lymphadenopathy, splenomegaly, and hepatomegaly regressed. It was necessary to repeat treatment at intervals varying from one to eight months. Less favorable results have been obtained in cases of lymphosarcoma. The response in acute and chronic lymphogenous and myelogenous leukemias has been disappointing.

The action of the available nitrogen mustards on lymphoid tissue has not yet reached that degree of specificity which precludes undesirable actions on the hematopoietic system. However, if care is taken with dosage, an adequate clinical response may be obtained without affecting to a serious degree the formed elements of the blood. In addition, nausea and vomiting are very likely to occur for a brief period after each injection. No other undesirable effects on the gastrointestinal tract have been observed.

Although some patients receiving nitrogen mustards have been observed for a period of 28 months, the evaluation of the clinical status of this group of compounds will require many more years of careful study. At present there is no basis for assuming that the therapeutic efficacy of the nitrogen mustards is any greater than that of X-ray.

It is possible that the potential value of the nitrogen mustards in the treatment of neoplastic diseases will be fully realized only when the relationship between chemical constitution and pharmacodynamic action has been completely worked out. At present only two of the nitrogen mustards have been investigated clinically, namely, tris(B-chloroethyl)amine and methyl-bis(B-chloroethyl)amine. Literally hundreds of congeners remain to be synthesized and evaluated. Thus, a series of compounds which can reproduce in many ways the cellular effects of X-rays is available for chemical and biological investigation. (Science, April 5, '46 - Gilman and Philips)

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Determination of Operability of Cancer of the Stomach with the Abdomen Opened: In order to avoid the misfortune of discovering in the midst of a subtotal or total gastrectomy that a patient with cancer of the stomach who was believed to be operable is on the contrary inoperable, Dr. Frank Lahey

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offers preliminary investigative procedures that are worth while undertaking when the abdomen has been opened and the lesion exposed. Through the procedures that follow it may be determined whether or not the contemplated gastrectomy is justifiable in relation to possible years of life to the patient:

(1) Inspect the lesion and palpate it to determine (a) whether or not it has involved other structures, such as the transverse colon and the liver by direct extension, (b) whether or not it is fixed, particularly to the head of the pancreas and (c) whether or not with a prepyloric lesion there are extensive metastatically involved nonremovable nodes in the angle made where the greater curvature approaches the pylorus and at the inner aspect of the first portion of the duodenum.

(2) Inspect the omentum to make sure that no carcinomatous infiltration is present.

(3) Make an opening through the gastrohepatic omentum into the lesser curvature and palpate the posterior wall of the stomach to determine whether or not there is definite fixation and, if present, whether or not it is the result of an inflammatory exudate or direct infiltration of the pancreas itself.

(4) Palpate the left gastric artery to make sure that it is free and can be ligated as a trunk without tying through malignant tissue or that it is not surrounded by metastically involved nodes.

(5) Palpate the gastrohepatic omentum for nodes, palpate the liver for metastases and palpate the pelvic fossa for the possibility of gravity metastases or shelves within the pelvis.

(6) Examine the parietal peritoneum including the roots of the mesentery of the small intestine to make sure of the absence of the small, shot-like metastases one often feels in peritoneal implantations.

(7) Investigate the jejunal fossa. This procedure has been of the greatest value to the author. Turn up the transverse colon and carefully palpate and inspect the jejunal fossa at the point of disappearance of the jejunum. In many cases metastatic extensions in this region will be so demonstrable as to make it possible to settle definitely that the lesion, otherwise thought operable, is inoperable.

(8) In certain cases which are borderline as to operability it will occasionally be necessary to free the omentum from the transverse

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colon in order to turn the stomach up and inspect its posterior wall to determine how high the malignancy extends before operability can be settled.

(9) In total gastrectomy carefully palpate the esophagus on either side as it disappears through the diaphragm, particularly in high malignant lesions of the cardia or in the lesions of the linitis plastica type of carcinoma that invades the entire stomach wall by infiltration. More than once the demonstration of firm, small, metastatically involved nodes in this location has saved Doctor Lahey from undertaking a total gastrectomy following which the patient would have had little chance of his life being prolonged. Here, too, determine how much esophagus remains uninvolved in order to settle whether or not there will be enough for a satisfactory anastomosis with the jejunum. (Lahey Clinic Bull., Jan. '46)

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Atypical Pneumonia Due to Rickettsia: Outbreaks of a rickettsial disease related to Q fever are reported in the U. S. Army Medical Department Bulletin of March 1946.

In March 1945, an explosive outbreak of atypical pneumonia in British parachute troops was reported. The outbreak began in Athens a few days before the troops left for Italy and continued after their arrival. Subsequently, similar outbreaks in five U. S. Army units in northern Italy were investigated. Four of the five units had been encamped within 2 miles of one another. Each outbreak was related in some way to the habitation of a specific dwelling place or locality by the troops who became ill. Evidence of person-to-person spread was lacking.

The clinical picture was similar in all of the outbreaks. The patients complained of feverishness, frontal headache and often of pleuritic pain. Upper respiratory symptoms and signs were rare. X-ray films of the chest showed patchy consolidation in almost all cases. The temperature ranged between 103° and 105° F. and dropped by lysis. A rickettsia eticlogically related to the cases which occurred in northern Italy was isolated by Robbins in the 15th Medical Laboratory. Studies made there indicated that the disease was closely related to Q fever.

In June 1945, the Commission on Acute Respiratory Diseases studied an outbreak of atypical pneumonia in the 717th Bomb Squadron, which had just returned to the United States from Italy. The epidemic had begun on the transport conveying the men, but the onset of illness in most of the patients occurred after their arrival at the Hampton Roads Port of Embarkation.

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Within about two weeks, 145 (38 per cent) of the 379 officers and men of the squadron were hospitalized at Camp Patrick Henry, Virginia.

Clinical studies which were undertaken at the Station Hospital revealed that the salient features of the disease were similar to those observed in the Italian outbreaks. In addition to headache, feverishness and pleuritic pain, many of the men complained of muscular aching. Ninety per cent of the patients had roentgenographic evidence of pulmonary infiltration, which was frequently multiple and peripheral, and often wedgeshaped with the base of the wedge on the pleura. The most typical physical findings were fine rales at the end of inspiration. There was no rash or splenomegaly, the leukocyte count was normal and upper respiratory signs and symptoms again were notably absent. The sedimentation rate was elevated during the acute phase of the illness and returned to normal during convalescence which was not protracted. Resolution of the pulmonary infiltration was usually rapid, and postfebrile asthenia was rare.

From epidemiological investigations it appeared that the minimum incubation period of the disease was about two weeks.

Laboratory studies by the Commission on Acute Respiratory diseases revealed that convalescent sera from a significantly high proportion of the patients contained agglutinins to a rickettsia which is related to the agent of Q fever. These findings were confirmed at the National Institute of Health where complement-fixing antibodies against a known Q fever antigen were demonstrated. Organisms of the Proteus group were agglutinated by these sera only in low titers; this behavior is consistent with that exhibited in Q fever.

Further work on the etiology of these outbreaks is being carried on in the Army Medical Center, the Respiratory Diseases Commission Laboratory and the National Institute of Health.

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The Treatment of Bacterial Endocarditis with Penicillin: A study was made of the results in 28 patients with streptococcal and staphylococcal endocarditis treated with penicillin in the three-year period from December 1942 to December 1945. In 21 cases the infecting organism was the Streptococcus viridans, in one the organism was a nonhemolytic microaerophilic streptococcus, in 5 the organism was a hemolytic Staphylococcus aureus and in one it was a Staphylococcus albus. In this series, all patients with adequate clinical and laboratory evidence of bacterial endocarditis were included, regardless of their condition at the time of admission to the hospital.

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The usual procedure for the administration of penicillin was the intramuscular injection of 40,000 units every two hours day and night. Continuous intravenous infusion was employed for the most part only when it was necessary to give even more massive doses. When bacteremia persisted after several weeks of therapy, the dose of penicillin was increased. The duration of treatment was variable, but in the more recent cases it was continued until the patient was afebrile for at least six weeks. Supportive measures were employed freely as indicated.

The results of this study confirm the efficacy of penicillin in bacterial endocarditis. They are striking when compared with those obtained in 24 patients over a seven-year period, from 1935 to 1941 inclusive, when, without penicillin therapy, the progress of not a single infection was arrested. In the present series of 28 cases, 18 patients are living and well; one is living but without arrest of his infection; and 9 have died. Of the 9 patients who died, 8 had a Streptococcus viridans and one had a hemolytic Staphylococcus aureus infection.

In two patients relapse occurred, apparently because penicillin was not continued long enough. The histories of 6 others showed that penicillin had been given to them for short periods of time previous to this study and that the clinical manifestations of the disease had recurred shortly after therapy was concluded. In five of these six patients further and prolonged treatment with penicillin resulted in a satisfactory arrest of the infection. In the other patient, in whom further treatment was unsuccessful, the evidence suggests that failure resulted mainly from an inherent resistance of the organism to penicillin.

The general experience supports the opinion that penicillin therapy should be continued over a long period of time and does not indicate that the infecting bacteria are likely to acquire enough resistance through one or two inadequate courses of treatment to interfere with subsequent success.

The histopathologic examination of the valve of one patient dying of heart failure after the completion of treatment revealed no bacteria.

Two patients died of cardiac insufficiency and two more had episodes of heart failure in spite of the fact that their infections were apparently arrested by penicillin. It has been suggested that cardiac failure may be due to valvular deformity produced by fibrous contractions in healing vegetations, particularly if the aortic valve is involved. It is not possible to prove that such a mechanism was responsible for heart failure in these patients.

The importance of prompt, intensive and prolonged penicillin treatment cannot be too strongly emphasized when one considers (1) the failures recorded

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in six of the patients who died early in the course of therapy and (2) the progressive debility and the danger of disabling or fatal embolism and other complications which accompany systemic infection. (J. Lab. and Clin. Med., March '46 - Glaser et al.)

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Progress in the Treatment of Subacute Bacterial Endocarditis: Three hundred and forty-seven proved cases of subacute bacterial endocarditis treated at the Peter Bent Brigham Hospital from 1913 to 1945 have been studied. There were no known recoveries among 237 cases seen between 1913 and 1937, during which time a great variety of therapeutic procedures were employed.

Of the 90 cases observed from 1937 to 1943, 55 received adequate treatment with a sulfonamide. Sixteen of the latter patients were given simultaneous fever therapy. Of these, one treated by infrared radiation and three treated by typhoid vaccine recovered and have remained well for from two to four years. None of the other sulfonamide-treated patients recovered.

Of 20 patients studied since January 1944, 17 were given large doses of penicillin. In 11 cases the infection has been cured or arrested, and the patients are now alive. The follow-up periods vary between six and eighteen months. In two cases the infection was bacteriologically arrested, but death occurred some weeks later because of complications.

Dental sepsis, extraction of teeth and dental manipulations were found to be related to the onset of this disease in a surprisingly large number of cases. Infected teeth should be removed before treatment is completed, as a prophylaxis against subsequent reinfection of the heart valves.

A change in the sensitivity of the skin to streptococci was found to vary with the stage of illness. The reaction was almost invariably negative during the active stage of infection (74 of 77 cases) and became positive in the patients who recovered (11 cases).

Although penicillin appears to be a promising cure for subacute bacterial endocarditis, patients who recover from this disease are left with the same or further valvular deformities which continue to predispose them to reinfection or to subsequent congestive heart failure.

The successful treatment of a patient with subacute bacterial endocarditis is an individual problem that requires careful attention to the details of therapy.

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Successful treatment depends on maintaining penicillin blood levels considerably in excess of the minimal inhibiting concentration of penicillin for the patient's organism. (New England J. Med., Jan. 17, '46 - Favour, Janeway, Gibson and Levine)

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Incidence of Leukemia in Radiologists: Exposure to X-rays has for some time been regarded as a possible cause of leukemia. This belief is based in part on results obtained by experimental exposure of animals to X-rays and in part on several reports of cases of leukemia occurring in workers exposed to radiation. Definite proof of such an etiologic relation has not been established, and some authors have expressed doubt concerning it.

However, Henshaw and Hawkins found upon study of the death notices in the Journal of the American Medical Association that over a ten-year period (1933-1942) leukemia was attributed as the cause of death in physicians 1.7 times more frequently than among white males in the general population.

Since most physicians are not subject to exposure to radioactivity, the author believed that a comparison between the incidence of leukemia among radiologists and that among other physicians might reveal significant results. In undertaking his own statistical study of 34,626 obituary notices in the J.A.M.A., covering the ten-year period from 1935 to 1944, he found that the incidence of leukemia among 205 physicians listed as radiologists was 3.9 per cent, which is more than eight times as great as the incidence (0.44 per cent) among those not listed as radiologists.

This marked difference constitutes substantial evidence that exposure to radiation is a potential cause of leukemia. (New England J. Med., Jan. 10, '46 - Ulrich)

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Report on the Clinical Investigation of Streptomycin by the Committee on Chemotherapeutics and Other Agents of the National Research Council: This report, parts of which are included here, was made at a meeting of the Committee held on 30 April 1946:

The program for the clinical investigation of streptomycin under the direction of the Committee on Chemotherapeutics and Other Agents was started officially on 1 March 1946. After careful consideration and study of the clinical results which had been collected prior to 1 March, the Committee decided to extend the study to include the following diseases:

1. Gram-negative bacillary infections of the genito-urinary tract, resistant to the sulfonamides.
2. Gram-negative bacillary infections with bacteremia.
3. Hemophilus influenzae infections including meningitis, pneumonia, middle ear disease, laryngotracheitis, etc.
4. Klebsiella pneumoniae (Friedlander bacillus) pneumonia.
5. Typhoid fever.
6. Salmonella infections (Paratyphoid).
7. Acute brucellosis.
8. Tularemia.
9. Bacterial endocarditis due to Gram-negative bacilli.

For the present, the Committee decided to exclude from the program the following diseases:

1. Chronic idiopathic ulcerative colitis.
2. Lupus erythematosis acutus disseminatus.
3. Leukemia.
4. Cancer.
5. Fever of unknown cause.
6. Rheumatic fever.
7. Rheumatoid arthritis.

The reasons for excluding these diseases from investigation at present were due to the fact that their cause is unknown, or previous experience had indicated that streptomycin was ineffective. If these diseases were included in the program, all of the available material would be used without obtaining any definitive answers. In formulating its policies the Committee kept before it the main objectives of the investigation - namely:

1. To study the effects of streptomycin in the treatment of bacterial and other infections which are not susceptible to the action of the sulfonamides and penicillin.

2. To collect information concerning the usefulness of streptomycin so that it will be available to physicians and industry when adequate amounts are manufactured for general use.

3. To utilize streptomycin in the most economical way so that the maximum amount of information may be obtained with the least amount of material in the shortest period of time.

Policy in Tuberculosis: The Committee fully realized that one of the most important problems for study was tuberculosis. It was appreciated,

however, that any research program that included tuberculosis would of necessity be a long-range one. It would require a large number of patients who could be followed most carefully for a period of several years. Also, the problem is a very big one, and with the present available supplies it seemed wise to limit the human experiment in tuberculosis to those cases which were already under treatment on 1 March. No new cases have been accepted for treatment under the program. To carry on the experiment which had been started at Rochester, Minnesota, and to continue the treatment of miscellaneous individual cases throughout the country which had been started on therapy has required 3,196 grams,or approximately 14 per cent of the total allocation for the months of March and April.

That this policy was a wise one is supported by the experience with respect to requests which have been received for the treatment of tuberculosis. If requests for the use of streptomycin in tuberculosis had been acceded to, it would have required at least 36 kilograms of streptomycin to treat the patients for a period of one month, or $540,000 worth of material at current cost.

Doctor Keefer and his Committee hope that a long-range program and study can be formulated in the Army, Navy, Public Health Service and Veterans Administration shortly, and that some program can be developed for the study of a small group of patients in four or five places where the facilities are adequate for a scientific investigation and an adequate follow-up.

Chronic Toxicity Studies: Aside from the observations that are being made in Rochester, Minnesota, on chronic toxicity in patients who are being treated for tuberculosis, a program was started at the New York Hospital using crystalline streptomycin in amounts of three grams daily. So far, two of ten patients have shown sensitivity to crystalline streptomycin at this dosage level after 8 or 9 days. The reaction was characterized by erythema, leucopenia, eosinophilia, nausea and vomiting. Skin and conjunctival tests were negative. When the rash subsided, a full single dose was given, and this was followed by a chill and fever to 40.6° C. (105° F.) without a reappearance of the rash. A second patient developed rash on the eighth day. She was tested by intrathecal injection which was followed by headache, nausea and vomiting. When she was retested with a full dose of 0.375 Gms. intramuscularly, she developed a shock-like state. Two of the patients have complained of dizziness. Casts have appeared in the urine of all patients. Otherwise there have been no side effects.

From these studies so far it is plain that the use of crystalline streptomycin is followed by sensitivity in a certain number of patients (2 of 10 studied). This experience would indicate that streptomycin itself is a sensitizing agent, and that using crystalline material will probably not decrease the incidence of sensitivity over that which is observed from commercial lots containing other substances besides streptomycin.

SUMMARY OF RESULTS

Tularemia: From the evidence which has accumulated so far it is clear that streptomycin is the best available agent for the treatment of tularemia. The average dose which has been effective is 0.75 grams per day for a period of at least 6 days.

Brucellosis: So far the results in acute brucellosis have been discouraging even in those cases in which as much as 6 grams a day have been given for from 10 to 14 days. In many cases, the blood is not cleared of organisms even when on treatment, and if organisms disappear from the blood during treatment, they may reappear shortly after streptomycin is discontinued. In the last table under "Brucellosis," 22 cases are listed as improved. This indicates that the temperature became lower during treatment or shortly after streptomycin was discontinued. That this decrease in temperature may be due to the drug is quite inconclusive for the reason that undulant fever is a relapsing disease, and many patients have remissions of the disease without treatment. Some patients have relapsed soon after streptomycin is discontinued. It may be possible to obtain additional information by determining the relapse rate in various patients. Different dosage schedules were used varying from 2 to 6 grams a day for from seven to fourteen days.

Bacteremia Due to Gram-Negative Bacilli and Other Organisms: Most of these cases had a primary lesion in the genito-urinary tract.

	No. of Cases	R.	I.	D.	N.E.
E. coli	24	21		3	
Pseudomonas aeruginosa (Bacillus pyocyaneous)	9	5	2	2	
Salmonellae	5	4		1	
Aerobacter aerogenes	4	4			
A. aerogenes Ps. aeruginosa E. coli	1			1	
Proteus A. aerogenes	1	1			
E. coli Streptococcus fecalis	1				1
Staphylococcus aureus	4	1	1	2	
Proteus	3	2		1	
Klebsiella pneumoniae	1			1	
Totals:	53	38	3	11	1

The results in this group have been quite good considering the nature of the infections and the primary focus. The average dose has been 2 grams a day for a period of from 7 to 14 days depending upon the clinical response of the patient.

Typhoid Fever: So far, there is no evidence that streptomycin influences the clinical course of typhoid fever. This statement is based upon the fact that there is no evidence that the total duration of the disease has been shortened. There are too few cases to make any statements about fatality rates. Some patients have received from 4 to 6 grams a day for from 10 to 14 days without striking effects. It should be emphasized that many patients with typhoid fever develop deafness due to the disease, and this complication should not be confused with deafness that may occasionally occur as a side effect of streptomycin.

H. Influenzae Meningitis: In H. influenzae meningitis the results have been extremely good, and in most instances recovery occurs much more rapidly than when antiserum and sulfadiazine are used. Prompt diagnosis and early and adequate treatment are important. A number of failures have occurred in patients who received treatment late in the course of disease.

Urinary Tract Infections: The following points are clear:

1. The best results have been obtained in patients with infections due to E. coli, A. aerogenes and B. proteus.

2. The results in B. pyocyaneus infections have been very poor since most strains of B. pyocyaneus are extremely resistant to streptomycin.

3. Streptococcus fecalis infections are likewise extremely resistant.

4. When there are obstructive lesions in the genito-urinary tract or foreign bodies, streptomycin can be used to advantage as a part preoperative and postoperative treatment. Sterilization of the urine when obstruction or foreign bodies are present is extremely difficult, and in some cases impossible.

5. In many cases there has been no effect. This is due to the fact that organisms are present in the urine which are resistant to as much as 50 mgm. of streptomycin per c.c. Some patients have received as much as 7 grams of streptomycin a day, and within 72 hours the organisms which are recoverable from the urine are exceedingly resistant. It is clear, therefore, that many

patients with urinary tract infections will not respond to streptomycin alone. It will probably be necessary to study the possibilities of combined chemotherapy in these infections.

Toxic Reactions: The distribution of reactions was as follows:

Fever alone	7
Fever and skin eruptions	3
Fever and vertigo	2
Fever and nausea and vomiting	1
Fever and flushing of skin	1
Headache	2
Headache, tinnitus and vertigo	1
Flushing of skin alone	4
Flushing of skin and headache	1
Flushing of skin and fever	1
Flushing of skin and headache and vertigo	3
Deafness	2
Tingling	2
Tinnitus	1
Fall in blood pressure	1
Abdominal distension	1

Headache and fever may be present throughout the treatment. Urticaria and other skin eruptions occurred on the second to the sixth day of treatment. Flushing of the skin occurred from the first to the ninth day.

So far the Committee has been unable to correlate reactions with lot numbers. There are tremendous individual variations in the types of reactions and the time of their appearance.

Table Covering Summary of Results

Disease	No. of Cases	R.	I.	D.	N.E.*
Tularemia	34	32			2
Brucellosis	25		22		3
Bacteremias	55	38	7		10
Typhoid fever	7		7		
H. Inf. Meningitis	45	37	1	7	
Tbc. Meningitis*	12		3		9
Urinary Tract Infections	132	77	21		34
Miscellaneous Diseases					
Peritonitis	16	7	5		4
Infections of Skin and Subcutaneous Tissues	8	4	1		3
Draining fistulae	4		1		3
Ulcerative Colitis	7		2		5
Respiratory Tract Inf.					
Klebsiella pneumoniae	12	4	6		2
Totals:	357	199	76	7	75

*All treated prior to March 1st. **R - Recovered; I - Improved; D - Died; N.E. - No Effect.

(Civilian Production Administration)

Note: This outstanding service to the medical profession and to society as a whole is made possible by the efforts and cooperation of the Civilian Production Administration, the National Research Council Committee, headed by Dr. Chester S. Keefer, and the Streptomycin Producers who contributed a large sum of money to finance the study.

Information on the setup of this program is contained in the Bumed News Letter of 15 March 1946, page 19.

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Evaluation of the Results from Vaccination Against Smallpox: Fairly extensive outbreaks of smallpox have occurred among civilians in Japan, China and Korea. In addition, significant numbers of cases have appeared in military forces stationed in these areas. This is indicative of a serious failure in the immunization program, since it is well established that recent successful vaccination will render an individual immune to smallpox. The occurrence of smallpox in the relatively few naval personnel who have contracted the disease has been found due to unsuccessful vaccination, or failure to revaccinate at the proper interval.

That vaccination is not being carefully performed has been further shown by medical officers on transports who have recently found a high percentage of accelerated reactions (up to 30 per cent) and even some primary reactions in naval personnel who were supposedly effectively immunized a short time before. This alarming finding of many nonimmunes may be ascribed to failure to inspect at proper intervals or failure to interpret reactions correctly after vaccination. The result is that vaccination failures are frequently recorded as "immune reactions."

All of the instructions necessary for successful immunization of any military group against smallpox are found in the Manual of the Medical Department, (revised 1945), as follows: (a) When vaccinations are to be done - paragraph 35B6, (b) Technique - paragraph 35B7, (c) Preservation of cowpox virus - paragraph 35B8, and (d) Types of reactions and recording - paragraph 35B9.

Medical officers and corpsmen on independent duty are reminded of the factors which must be borne in mind to effect successful vaccination. They are:

A. The virus must be potent. It should be used before the expiration date, and must be continuously stored at or below 5° C., preferably below freezing. With proper technique and potent vaccine, failures should be extremely rare. A potent vaccine will produce immune reactions in virtually all fully protected individuals. It should produce accelerated reactions in many of those not protected by successful vaccination within the previous 3 or 4 years, and will produce primary reactions in virtually 100 per cent of those completely lacking in immunity.

B. The technique must be adequate. The vaccine is to be inserted in a very small area, (1/8 inch in diameter). Multiple needle pressure, rather than scratching is advised. At least 30 applications

of pressure through the drop of vaccine lymph are recommended in order to insure adequate insertion of vaccine virus. It is not necessary or desirable to draw blood.

C. Checking of results is essential. No reaction at all is a failure and is not to be recorded. Vaccination must be repeated until one of the three reactions below is obtained:

(1) Immune reaction (IR): This is a definite erythematous reaction over and above that due to needle trauma. It must be read on the second day after vaccination as it reaches maximum diameter in from 8 to 72 hours and will have faded out before the 7th day. This reaction indicates immunity.

(2) Accelerated reaction (Acc.): Erythema begins later, and reaches maximum diameter in from 3 to 7 days. Vesicles usually do not appear. An accelerated reaction usually indicates a former immunity which has been partially lost. Such a reactor can have atypical smallpox even while showing this reaction, and thus be a source for the spread of the disease.

(3) Primary reaction (Pri.): Erythema begins later, certainly by the fifth day, and reaches maximum diameter in from 8 to 14 days with vesicles which become pustules. This reaction denotes lack of immunity and frank smallpox may coexist with this reaction. Therefore, contacts who show accelerated or primary reactions while in quarantine must not be released from quarantine in less than 14 days from their last exposure.

From the above it is apparent that every vaccination must be examined approximately 48 hours after vaccination in order to identify immune reactions and to differentiate them from failures. This examination must not be left to an untrained person. A second examination on or about the 7th day will show the accelerated and primary reactions. Alnav #181 of 16 April 1946, appearing on page 30 of this issue, makes mandatory at least two observations by the medical officer after each vaccination in order to differentiate immune reactions from failures. Those individuals showing no reaction at either time should be revaccinated at once. If there are many failures, or if accelerated and primary reactions are not produced in a group of individuals whose immunity is known to be low or lacking, diminished potency of the vaccine virus should be suspected. If the vaccine appears to be at fault, a new lot should be used in revaccination. (Preventive Medicine Div., BuMed)

Reference to previous Bumed News Letter item on this important subject: Volume 7, Number 8, of 12 April 1946.

(Not Restricted)

Further Notes on Penicillin. Recent evidence indicates in general that of the four penicillin fractions F, G, K and X, X is the most effective clinically, G is next, F possesses almost the same degree of effectiveness as G and K exhibits the least desirable characteristics.

Differences in the effectiveness of the various fractions against different pathogenic bacteria have been shown to exist, and as additional supplies of the individual fractions in more highly purified form became available, increased studies will be undertaken to determine more accurately these differences.

As produced commercially, fractions G and K have, for practical reasons, been of the greatest importance because together they usually constitute almost the entire penicillin yield

It has recently been determined that the greater antibiotic effectiveness which penicillin K exhibits over penicillin G in vitro does not hold true in vivo. Sustained satisfactory blood levels of K are not readily accomplished. Only about from 10 to 20 per cent of any administered amount can be shown to be excreted by the kidneys. On the other hand, blood levels of G are easily maintained, and up to 90 per cent of administered doses can be shown to be excreted in the urine. In these respects fractions F and X are essentially similar to G. The consensus is that, as now used, and insofar as its pharmacology is now understood, penicillin K is too quickly inactivated in the body to be considered of any appreciable clinical value

The producers of penicillin, as soon as this opinion became crystallized instituted measures to assure the highest possible yield of penicillin G and the lowest possible yield of K.

It has been found that the addition of certain "precursor substances" to the medium in which the penicillium is grown greatly improves the yield in penicillin G. It will be a while before the products resulting from these changes reach the market. As indicated in the Bumed News Letter of 12 April 1946 and Alnav 158 in this issue, the currently available supply of penicillin should be employed in dosages in accordance with the clinical results achieved and expected.

As the chemistry and biological activity of the penicillins F, G, K and X and the possible modifications of them (some of which have already been studied) become better known, even more useful penicillins can be expected.

Culture processes adaptable to the commercial production of penicillin X are being developed. Using a special strain of penicillium and employing

(Not Restricted)

culture and extraction processes differing from those used for the production of G and K, penicillin X can be harvested in an amount up to almost 50 per cent of the yield.

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(Not Restricted)

Synergistic Action of Penicillin and Sulfathiazole on the Etiological Agent of Typhoid Fever in Vitro: Dr. J. W. Bigger, Professor of Bacteriology and Preventive Medicine at the University of Dublin, acknowledging that it is generally considered that the typhoid bacillus (Eberthella typhosa) is resistant both to penicillin and to sulfonamides, undertook an investigation of the effect of the two separately and in combination on E. typhosa.

Using broth freed from sulfonamide-antagonizing substances by the method of Harper and Cawston, sulfathiazole was found to inhibit the growth of E. typhosa to a considerable extent. It had some bactericidal effect, but only on a small inoculum.

Penicillin in concentrations up to 8 units per c.c. reduced but did not prevent the growth of E. typhosa in broth.

The combination of penicillin and sulfathiazole had a pronounced bactericidal effect on E. typhosa. Penicillin (4 units per c.c.) with sulfathiazole (10 mg. per 100 c.c.) sterilized broth containing 70,000 E. typhosa per c.c. Penicillin (1 unit per c.c.) with sulfathiazole (10 mg. per 100 c.c.) sterilized broth containing 7,000 E. typhosa per c.c.

There is always a considerable element of hazard in applying the discoveries of the laboratory to the human patient, but it is only by attempting the treatment suggested that it can be determined whether or not theory can be applied to practice. A prima-facie case for the trial has been made. Doctor Bigger states that it can be said with considerable confidence that, if the treatment does not benefit the typhoid patient, it is very unlikely to harm him.

Doctor Bigger's tentative suggestions as regards treatment are:

1. Commence treatment as soon as the diagnosis has been established.
2. Administer sulfathiazole regularly in full doses and simultaneously, penicillin, preferably by continuous application, at the rate of from 2-1/2 to 3 million units a day which should maintain a concentration of over 2 units per c.c. in the serum.
3. Continue the treatment for at least 5 and preferably for 7 days. During this period pyrexia is to be expected from the release of toxic substances by the bacilli which have been killed and have undergone lysis.

(Not Restricted)

4. Stop both treatments at the same time, and observe the patient for any evidence of the continued presence in the body of typhoid bacilli. If such should occur, resume treatment and continue for a further 4 days.
5. Control the effects of treatment by frequent blood and feces cultures, using for the former broth containing p-aminobenzoic acid and penicillinase. (Lancet, Jan. 19, '46)

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Homologous Serum Hepatitis: Because of recent medical experiences in which the evidence indicates that moderately large outbreaks of homologous serum hepatitis have resulted from the large-scale use of convalescent sera, and of presumably normal human sera randomly selected and injected as controls or used parenterally for other purposes, this subject is being carefully studied.

Further information resulting from this study together with the general policy now being formulated concerning this problem is expected to be forthcoming at an early date. (Research Div., BuMed)

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(Not Restricted)

Treatment of Early Syphilis: At present new schedules of therapy for early and latent syphilis based on recent developments with the use of penicillin, arsenicals and insoluble bismuth are being formulated.

It is anticipated that appropriate directives will be forthcoming as well as notices outlining the general policy. (Preventive Medicine Div., BuMed)

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(Not Restricted)

Abstracts of Reports on Research Projects: (Full reports are available upon request.)

X-603 Study in Employment of Flotation Gear by Field Medical Organizations.

Several simple and effective methods which may be used for the evacuation of individual casualties across small bodies of water have been developed. Most of the devices used in these methods are easily and quickly constructed from items which are readily available in the field. Of the devices presented, those involving the use of pneumatic life preservers or empty ammunition or water containers seem most

(Not Restricted)

X-603 (Cont.) acceptable from the point of view of availability and simplicity. (Medical Field Research Laboratory, Camp Lejeune, N. C.)

X-664 Portable Dental Operating Light for Field Use.

A light suitable for field dental use has been devised by modifying the dental stand of field medical unit No. 35 to include fixtures on which a microscope lamp can be mounted. The lamp and accessories weigh approximately eight pounds and may be stowed in the base of the dental stand. Use of the proposed light would eliminate the considerable weight and bulk of the surgical spotlight which is now employed for field dental procedures. (Medical Field Research Laboratory, Camp Lejeune, N. C.)

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(Not Restricted)

Rodent Control Officers Being Trained for Duty: Rodent control work has assumed major significance in the Pacific Ocean Area due to outbreaks of bubonic plague in the China area.

Ten chief pharmacists were detailed to the Bureau of Medicine and Surgery for a special course of training in the latest rodent control technics. Lt. Comdr. T. B. Murray, H(S), USNR, who recently returned from a fourteen-month tour of duty in the Pacific, instructed these men in the latest methods of controlling rodents under conditions encountered in the Pacific. Special type baits were developed during the war. Methods of exposing baits to overcome adverse climatic and natural food conditions were perfected through careful experimentation and field trials.

Seven of these chief pharmacists are being detailed to key points in the Pacific Ocean Area. They will have the latest and most effective rodenticides and other necessary supplies together with up-to-the-minute information to ensure an adequate and successful control program on board ships and at shore stations.

Three of these chief pharmacists are being detailed for duty with fleet and shore commands in the Continental United States. Special emphasis will be given to control of rodents in deactivated fleets and detached ships. (Preventive Medicine Div., BuMed)

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(Not Restricted)

Bumed News Letter for Officers Separated from Service: As announced in the Bumed News Letter of March 29, 1946, the Surgeon General has approved a recommendation that the sending of the Bumed News Letter to all

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Naval Reserve officers of the Medical Department with designation MC, DC, and H(S) in an inactive duty status be continued for an indefinite period.

Such officers will facilitate execution of this plan if they will inform the Bureau of the address to which the Letter may be sent. Notices of permanent address or change of address should be sent to the Chief, Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C., Attention: Publications Distribution Section.

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(Not Restricted)

New Medical Supply Catalog: With the establishment of the Joint Army-Navy Medical Procurement Office at 52 Broadway, New York, N. Y. on 15 December 1945, all cataloging functions of the Army and Navy Medical Departments were centered in that office. Item Review Teams, consisting of representatives of the Army and Navy Medical Departments, were formed to review all classes of medical material with a view toward standardization of items common to both Services. Of some 10,000 items reviewed, approximately 5,000 were adopted as joint Army-Navy items. The new Medical Supply Catalog, consisting of the Bumed Section of the Catalog of Navy Material, will list initially 5,169 items, giving joint Army-Navy numbers, and joint Army-Navy nomenclature. In accordance with Alnav 147 of March 1946, this new Medical Supply Catalog will become effective 1 July 1946, and Medical Department activities are requested to order prescribed copies immediately using NavMed Form 4.

The introduction to the catalog thoroughly explains the characteristics of the catalog and methods of use and should be carefully read by all Medical Department personnel having cognizance of Medical Department material. (Materiel Div., BuMed)

Note: See Alnav 147 on page 28.

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New Film Available: MN-38b - It's Up To You - Venereal Disease Facts: This film for the instructional use of all Navy personnel shows the symptoms and effects of the following venereal diseases: gonorrhea, chancroid, syphilis, granuloma inguinale and lymphogranuloma venereum; it explains how the diseases are transmitted and how infection may be avoided. It also outlines briefly the normal functions of the male and female sex organs and indicates the Navy method of handling infected persons.

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(Not Restricted)

Completion of Work of Dental Corps Board in re Public Law 284, 79th Congress: The Board, consisting of six dental officers and one legal officer, appointed to recommend to the Secretary of the Navy the necessary regulations, directives, orders and changes in existing Bureau Manuals or in existing U. S. Navy Regulations, to make effective Public Law 284, 79th Congress, 1st Session, has completed its assignment. The recommendations were submitted to the Secretary of the Navy for approval 19 April 1946.

Public Law 284, 79th Congress, is quoted as follows:

"AN ACT To provide more efficient dental care for the personnel of the United States Navy. Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That within six months after the date of enactment of this Act the Bureau of Medicine and Surgery shall be reorganized so as to provide for greater integrity of the Dental Service in accordance with the provisions hereof.

SEC. 2. The dental functions of such Bureau shall be defined and prescribed by appropriate directives of such Bureau, and by any necessary regulations of the Secretary of the Navy, to the end that the Dental Division of such Bureau shall study, plan, and direct all matters coming within the cognizance of such Division, as hereinafter prescribed, and all matters relating to dentistry shall be referred to the Dental Division.

SEC. 3. The Dental Division shall (1) establish professional standards and policies for dental practice; (2) conduct inspections and surveys for maintenance of such standards; (3) initiate and recommend action pertaining to complements, appointments, advancement, training assignment, and transfer of dental personnel; and (4) serve as the advisory agency for the Bureau of Medicine and Surgery on all matters relating directly to dentistry. An officer of the Dental Corps of the Navy shall be detailed as the Chief of the Dental Division. Such officer, while so serving, shall have the rank, pay, and allowances of a rear admiral.

SEC. 4. The Secretary of the Navy shall provide by regulations for establishing on ships and on shore stations dental services to be under the senior dental officer who shall be responsible to the commanding officer of such ship or shore station for all professional, technical, and administrative matters in connection therewith: Provided, That this section shall not be construed to impose any administrative requirements which would interfere with the proper functioning of battle organizations.

All laws and parts of laws in conflict herewith are hereby repealed, and nothing contained herein shall act to reduce the grade or rank of any person.

Approved December 28, 1945." (Dental Division, BuMed)

(Not Restricted)

Dental Treatment for Dependents of Naval Personnel: On 5 March 1946 the Chief of Naval Operations addressed a letter to the Judge Advocate General of the Navy requesting certain advice. The reply from the office of the Judge Advocate General is reprinted here.

OFFICE OF THE JUDGE ADVOCATE GENERAL

JAG:II:WG:mh
P16-3/OD
22 March 1946

To: Chief of Naval Operations.

Subject: Dental Treatment for Dependents of Naval Personnel.

Reference: Ltr Chief OpNav to JAG, dated 5 Mar 1946, file Op-4O-aw, Serial 473 P 40.

1. In the reference advice is requested (a) as to whether Article 1178, U. S. Navy Regulations, "is founded on any statutory provisions" and (b) whether "there is any other statutory provision which would deny the services of Naval dental officers to dependents of Naval personnel" in case Article 1178 "was appropriately changed." In this connection it is noted from the reference that a small number of dependents of Naval personnel at overseas bases are in need of emergency and regular dental service.

2. Article 1178, U. S. Navy Regulations, provides in part as follows:

"The professional services of dental officers shall be available only for officers and men on the active and retired list of the Navy and Marine Corps, and such services are restricted to those measures which will most effectively and economically preserve the teeth of the personnel and insure physical fitness."

3. The act of 10 May 1943 (57 Stat. 81; 24 USC 35 Supp. IV) provides in part:

"Hospitalization of the dependents of naval and Marine Corps personnel and of the persons outside the naval service mentioned in section 4 of this Act shall be furnished only for acute medical and surgical conditions, exclusive of nervous, mental, or contagious diseases or those requiring domiciliary care. Dental treatment shall be administered only as an adjunct to in-patient hospital care and shall not include dental prothesis or orthodontia."

(Not Restricted)

4. Navy Regulations are issued by the Secretary of the Navy, with the approval of the President, pursuant to the authority contained in section 1547 of the Revised Statutes (34 U.S. Code 591). It is a well settled rule of judicial construction that the regulations so issued by the Secretary of the Navy are valid and have the force and effect of positive law when they are not inconsistent with statutory law. (LRNA, pp. 197, 784, citing 25 Op. Atty. Gen. 270; 27 id. 257.)

5. It has consistently been held that a regulation cannot enlarge, restrict or supersede the terms of a statute. (LRNA p. 199, citing Moses v. United States, 166 U.S. 571; Meads v. United States, 81 Fed. Rep. 684; Roberts v. United States, 44 Ct. Cls., 411; 15 Comp. Dec. 658 and other cases). Where a regulation issued by the head of a department amounts to an attempted exercise of the power of legislation, it is invalid. (LRNA, p. 198, citing United States v. United Verde Copper Co., 196, U.S. 207).

6. In accordance with the above principles, it is the view of this office that Article 1178, U.S. Navy Regulations, has been issued pursuant to statutory authority and has the force and effect of law. It is the further view of this office that Article 1178 cannot legally be changed to provide regular or emergency dental treatment for dependents of Naval personnel, since said Article 1178 would conflict with the Act of 10 May 1943, supra, providing in part that dental treatment for dependents of Naval personnel shall be administered only as an adjunct to in-patient hospital care. Such regulation, if changed as proposed, except to the extent that it would provide dental treatment for the dependents of Naval personnel as an adjunct to in-patient hospital care, would be in conflict with the Act of 10 May 1943, supra, and would therefore, in the opinion of this office, be invalid. Questions (a) and (b) of the reference are answered accordingly.

/s/ O. S. COLCLOUGH
Rear Admiral, U.S. Navy
Judge Advocate General of the Navy

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(Not Restricted)

Disestablishment of Naval Medical Activity. As published in the Navy Department Semimonthly Bulletin of 15 April 1946, the following Naval Medical activity was disestablished as of the date shown:

Name	Address	Date of disestablishment
U. S. Naval Hospital	Medford, Oregon	1 May 1946

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ALNAV 147 29 March 1946 (Not Restricted)

Subj: New Medical Supply Catalog.

A new medical supply catalog to become effective 1 July 1946 is available for initial issue. All Medical Department activities will requisition on NavMed Form 4 immediately via air mail to Naval Medical Supply Depot, Brooklyn, N. Y., for stock No. 14500-100, Catalog of Naval Material, Bureau of Medicine and Surgery section. Quantities to be requisitioned will be based on the following: Ships, type BB, 3; CB, 3; CV, 3; CVL, 2; CA, 2; CL, 2; APH, 3; AH, 12; all other types, 1. Hospitals: 250-500 beds, 18; 501-1,000 beds, 24; 1,001-1,500 beds, 36. Dispensaries: Less than 10 beds, 1; 10-50 beds, 2; 51-100 beds, 3; 101-200 beds, 6; 201-500 beds, 12. Research units: 6. Independent dental clinics: 2. All medical sections, FMF:1. Staff medical officers: 2. All other medical activities: 1.

For the purpose of change-over to new catalog, issue of medical stores from the nedical supply system will be discontinued between 15 May 1946 and 1 July 1946, except for emergency issue.

All medical activities, except those to be decommissioned prior to 1 January 1947, will estimate requirements to 1 September 1946, and prepare requisitions in accordance with present catalog and submit them immediately via air mail to nearest medical supply facility. Requisitions received subsequent to 15 May 1946 will be returned for resubmission after 1 July 1946 in accordance with new catalog.

Activities to be decommissioned prior to 1 January 1947 will not submit requisitions for new catalog. Such activities will estimate their requirements and requisition immediately, in accordance with present catalog, medical stores required until date of decommissioning, giving reference to this Alnav. Requisitions from such activities, other than emergency issue, received at medical supply facilities subsequent to 15 May 1946 will not be filled.

--SecNav. James Forrestal.

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ALNAV 152 2 April 1946 (Not Restricted)

Subj: Appointments for Temporary Service (Nurse Corps).

The President on 1 April 1946 appoints the following officers of the Nurse Corps, Regular Navy, and of the Naval Reserve, to the next higher rank for temporary service to rank from 1 April 1946 subject to the applicable provisions of BuPers circ. ltr. 222-43, as modified by Alnav 28-46, and to the service and other conditions stated herein:

Ensigns, Nurse Corps, Regular Navy and Naval Reserve, who reported for continuous active duty as ensigns 2 August 1944 and 1 September 1944, inclusive.

Lieutenants, junior grade, Nurse Corps, Regular Navy and Naval Reserve, who reported for continuous active duty as ensigns 2 June 1943 and 1 July 1943, inclusive.

In effecting the appointments full compliance with conditions and instructions expected. Prompt report shall be made to BuMed in the case of each appointment withheld for any reason and officer concerned shall be notified of the reason therefor. Following officers excepted from this promotion authority: Those described in paragraph 3, circ. ltr. 222-43, as modified by Alnav 28-46. Appointed officers will promptly submit the original of their acknowledgement and the original of their report of physical examination on Form Y to BuMed.

--SecNav. James Forrestal.

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ALNAV 158 5 April 1946 (Not Restricted)

Subj: Reduced Potency of Penicillin.

Reports indicate reduced therapeutic potency in certain lots of penicillin. The necessity of increasing the dosage will be dictated by the therapeutic response.

--SecNav. James Forrestal.

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ALNAV 176 12 April 1946 (Not Restricted)

Subj: Notification of Presence of Communicable Disease.

When carrying civilian passengers, naval vessels or aircraft prior to entering or landing at any port under U. S. military or civilian jurisdiction will radio to port authorities when any communicable or suspected communicable disease exists among such passengers. The information will be promptly passed to local civilian and naval health authorities to enable steps to be taken to prevent disease dissemination.

--SecNav. James Forrestal.

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ALNAV 181 16 April 1946 (Not Restricted)

Subj: Smallpox Vaccination.

Reports being received by BuMed indicate that in certain naval groups as high as 30 per cent of individuals presumably protected by routine smallpox vaccinations are showing primary or accelerated reactions upon revaccination.

Medical officers responsible for personnel, particularly those subjected to increased smallpox exposures, take immediate steps to assure that vaccination failures have not been recorded as immune reactions.

It is essential that naval personnel vaccinated for smallpox be observed by medical officers at least twice after smallpox vaccination in order to differentiate immune reactions from failures "to take."

--SecNav. James Forrestal.

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Circular Letter 46-71 22 April 1946 (Not Restricted)

To: All Ships and Stations.

Subj: Resuscitators, Accountability of.

Ref: (a) OP-23-2-MM Serial 281223, 6-27-31 of 12 July 1945, Action: All Ships and Stations.
(b) BuMed-T-P3-2 of 8 Aug 1945, Action: All Ships and Stations.
(c) ALNAV 22 - 141330/22 Jan 1946.

1. Resuscitators received by Medical Department activities of all Ships and Stations, in accordance with references (a), (b) and (c) should be taken up in Medical Department accounting records as follows:

S6-838 Resuscitator, portable, complete with carrying case. (The manufacturer and model number should be noted.)

Prepare memorandum Transfer Voucher Received (NavSandA 127) showing complete description of the item, unit price, total price, etc. and assign TVR number in regular series and record in the Equipment Receipt Section of the Journal of Receipts and Expenditures and in the Equipment Ledger.

2. Extra oxygen cylinders for use with Resuscitators, and not included in the Resuscitator carrying case should be taken up as indicated in paragraph 1 above, using the following description:

S6-459 Cylinder, oxygen, special 22 gallon capacity for use with stock number S6-838.

3. Attention is invited to Resuscitator Repair Facilities at Naval Medical Supply Depot, Brookly, New York, and Naval Medical Supply Depot, Oakland, California. Full advantage should be taken of such repair services. Resuscitators returned for repair should be transferred on Transfer Voucher Issued (NavSandA 127) at invoiced value.

--BuMed Ross T. McIntire.

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Circular Letter 46-72 23 April 1946 (Not Restricted)

To: MedOfCom, NavHosps and NavSpHosps.

Subj: Civilian and Enlisted Personnel Report.

Refs: (a) AstSecNav Cir Ltr OIR-700:tm dtd 21 Mar 1946.
(b) BuPers ltr Pers-21424-MhD Serial: 7029 dtd 10 Feb 1946.

Encl: * 1. (HW) Form NavMed 905 (Revised 4/46), "Civilian and Enlisted Personnel Report."

1. Reference (a) abolished the Form NAVEXOS 1170 (Summary Personnel Report and Estimates) and requested that each Bureau submit a tabulation showing the number of civilian employees "on board" 30 April 1946 and the estimated requirements for 30 September 1946, together with justification. Further, Bureaus have been directed to place ceilings on Groups I, II, III, and IV(a) employees. The information received by the Bureau in response to this letter will be used in establishing such ceilings and in furnishing the information requested in reference (a). As demobilization progresses it will be necessary to institute "Reduction in Force" consistent with changes in work load and other factors affecting personnel allowances. The figures submitted to the Bureau shall reflect the actual organization of civilian and enlisted personnel at the hospital, and should include all organizational units in which civilians may be employed.

2. In view of the rapid reduction in size of the over all Navy, the estimated number required for 30 September 1946 should be considerably below the "on board" figures for 30 April 1946. Any requested increases should be rare. In such instances, the request should be fully justified on an accompanying sheet. In this connection, your attention is invited to reference (b). The majority of military personnel will of necessity, be released without civilian replacement.

3. Instructions for completion of form NavMed 905 (Revised 4/46):

(a) Include each person only once. If a person is working in more than one organizational unit as listed on form NavMed 905 (Revised 4/46) account for him in the organizational unit in which he performs most of his duties.

* Because this enclosure was forwarded with advance copies to the addressees, it is not reprinted here.

(Not Restricted)

(b) Under Group IV(b) and Groups I, II, III, and IV(a) indicate the number of civilian personnel on board 30 April 1946 chargeable to the appropriation "Medical Department, Navy." Do not include civilians chargeable to other appropriations.

(c) Under "Military" include all male and female enlisted personnel regardless of the type of billet. Do not include any officers.

(d) If entries are made under "Others," indicate where the personnel are working.

(e) Enter on lines 16 and 17 personnel working in the Disbursing Office and Library. (If civilian Medical Librarians paid from appropriation "Medical Department, Navy" are on duty in the Library, they should be recorded under Group IV(b) "Others" above).

(f) Patients performing work in the hospital should not be included in any part of this report.

4. It is requested that each naval hospital complete enclosure 1, form Nav-Med 905 (Revised 4/46), and forward one copy of this report to reach the Bureau not later than 10 May 1946. (Activities west of Mississippi and Extra-Continental, forward via Air-Mail).

--BuMed. Ross T. McIntire.

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Circular Letter 46-73 23 April 1946 (Not Restricted)

To: MedOfCom, NavHosp (Continental).

Subj: Clinical Records in the Cases of Officer Personnel Hospitalized From a Terminal Leave Status - Forwarding of Transcripts of to BuMed.

Refs: (a) ALSTACON 222258, dated 22 March 1946.
(b) BuMed Cir ltr No. 46-44, 20 Feb 1946 (addressed to SepCens).
(c) BuMed Cir ltr No. 46-60, 29 Mar 1946 (addressed to NDs).

1. It is directed that a transcript of the clinical record in the case of any officer hospitalized from a terminal leave status as outlined in reference (a) be forwarded to BuMed at the time such officer is discharged from treatment in the hospital.

(Not Restricted)

2. Ref (b) and (c) directed that medical history sheets (NavMed H-8) and dental records (NavMed H-4) on reserve officer personnel be removed from the health records by separation centers and naval districts and forwarded to BuMed so that the information required by Veterans Administration will be readily available in case a claim is submitted. The transcript required in par 1 is requested to complete the individual's medical history record.

--BuMed. Ross T. McIntire.

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Circular Letter 46-74 2 May 1946 (Not Restricted)

To: All Ships and Stations.

Subj: Revised Malaria Indoctrination Schedule for Naval Personnel.

Refs: (a) CNO Ser. 0836030 of 8 Dec. 1943.
(b) BuMed Cir. Ltr. 44-2, 4 Jan. 1944.
(c) Catalog of Training Films and Other Medical Training Aids (NavMed 150).
(d) CNO Ser. 3361P415 of 25 Mar. 1946.

1. Refs (a) and (b), which prescribe a malaria indoctrination program for all personnel destined for duty in overseas malarious areas, were canceled by ref (d).

2. Malaria indoctrination of naval personnel, however, is unaffected to the extent indicated below, and shall be continued:

(a) As a routine part in the initial training of all men upon first enlistment in the United States Marine Corps.
(b) As a special refresher course in malaria indoctrination in all Marine Corps units upon being alerted for transfer to a malarious area.
(c) In the case of naval personnel, other than of the Marine Corps, a malaria indoctrination course shall be given all individuals upon arrival at a malarious base.

Malaria indoctrination shall be given to officers as well as to enlisted personnel.

3. The subject matter and hours devoted to the indoctrination course will be

(Not Restricted)

determined by each Command in which an indoctrination program is required as outlined in paragraph 2 above. Basically, the course will consist of lectures, moving pictures, the use of posters and such other training material or methods as may be feasible. Ref (c) provides a list of training aids which will be made available either upon application to the Bureau of Medicine and Surgery, or as otherwise specified in the reference.

--BuMed. Ross T. McIntire.

--BuPers. L.E. Denfield.

--MarCorps. A. A. Vandegrift.

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